

### **REMARKS/ARGUMENTS**

By the present Amendment, claims 1-31 are pending in this application. Claim 30 is amended herein. Basis for this amendment may be found throughout the specification and claims as originally filed. No new matter has been added.

#### ***Specification***

The specification is objected to under 35 U.S.C. §132(a) as allegedly introducing new matter into the disclosure. In particular, the Action has objected to paragraph [0003], which specifies that electrospinning is a method of producing fibers with "diameters ranging from 10 nm to 10 m." As amended herein, this paragraph now recites "diameters ranging from 10 nm to 100  $\mu$ m." The production of fibers in the range of 10 nm to 100  $\mu$ m with the use of electrospinning technology is not new matter given that it is disclosed in paragraph [0024] of the specification and in claim 29 as originally filed. Applicants respectfully request reconsideration and removal of this objection.

#### ***Claim Objections***

Claim 30 is objected to because the term "between" allegedly should be deleted from the claim. Claim 30 has been amended herein to delete the term "between." Applicants respectfully request reconsideration and removal of this objection.

#### ***Claim Rejections - 35 U.S.C. §103***

##### **Claims 1-2, 4-11, 13-16, 18-20, and 27-31**

Claims 1-2, 4-11, 13-16, 18-20, and 27-31 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Bryner et al. (U.S. Patent No. 7,585,451 B2). Applicants respectfully disagree.

Independent claim 1 describes an apparatus for fabricating oriented polymer fibers. The apparatus includes a dispenser, for containing an electrically charged metastable polymer

dispersion, having a proximal and a distal end wherein the proximal end defines an orifice; an electrode positioned near the proximal end of the dispenser defining the orifice, wherein the electrode and the proximal end of the dispenser defining the orifice define a gap there between, wherein the gap between the proximal end of the dispenser defining the orifice and the electrode is between about 1 millimeter and about 10 millimeters; and a collector for receiving the oriented polymer fibers, wherein the collector is separated from the gap. Independent claim 15 is a method claim that includes similar limitations.

As a result of having the proximal end of the dispenser defining the orifice and the electrode in close proximity, the application of a high voltage electric potential to the electrode causes a portion of the metastable polymer dispersion to be electrically pulled through the orifice to create a liquid column motion followed by the formation of a polymer jet. The polymer jet is accelerated in the electric field towards a collector to provide the oriented polymer fibers. Thus, the close proximity of the orifice and the electrode and the high voltage applied to the electrode, surprisingly, provides for an accelerated polymer jet that is collected to provide the oriented polymer fibers.

Bryner does not teach or suggest any such apparatus or methods. Instead, this reference teaches an electroblowing process for forming a fibrous web of nanofibers, wherein a polymer stream is issued from a spinning nozzle in a spinneret with the aid of a forwarding gas stream. This reference teaches that the gas stream provides the majority of forwarding forces in the initial stages of drawing the fibers from the issued polymer stream and simultaneously strips away the mass boundary layer, thereby increasing the diffusion rate of solvent from the polymer solution in the form of gas during the formation of the fibrous web. The process taught by Bryner includes applying a high voltage to the spinneret with a grounded electrode such that an electric field is generated between the spinneret and the electrode. This reference also teaches a broad-range distances of about 1 to about 100 cm between the spinneret and the electrode, and that the individual polymer fibers that issue from the polymer stream have diameters measured in the hundreds of nanometers or less. This reference however, does not teach or suggest any

apparatus or methods for fabricating oriented polymer fibers, as set forth in independent claims 1 and 15, respectively. Thus, one of skill in the art would not have been motivated or had any reason to modify the teachings of Bryner, either based on their own general knowledge or on what this reference teaches, by removing the gas stream and relying on the close proximity of the orifice and the electrode and the high voltage electric potential of the electrode to cause a portion of the metastable polymer dispersion to be electrically pulled through the orifice to form a polymer jet, which is subsequently accelerated through the electric field to provide the oriented polymer fibers, as set forth in independent claims 1 and 15.

Nor would one of skill in the art, either based on their own general knowledge or on what this reference teaches, have any reasonable expectation of success in arriving at the claimed invention. As described above, Bryner teaches an electroblowing process for forming a fibrous web of nanofibers; whereas the claimed invention requires having an electrode positioned within about 1 to about 10 mm of the orifice of a dispenser containing an electrically charged metastable polymer dispersion, and having an electric voltage applied to the electrode positioned near the orifice in order to create the polymer jet stream, which is accelerated in the electrical field towards a grounded collector to provide the oriented polymer fibers. Thus, removing the gas stream of Bryner and relying on the close proximity of the orifice and the electrode, and the high voltage electric potential of the electrode as discussed above, would not lead one of skill in the art to have any reasonable expectation of successfully forming oriented polymer fibers, as set forth in independent claims 1 and 15. Instead, they would reasonably expect to form a fibrous web of nanofibers. Indeed, there is nothing in Bryner that would lead one of skill in the art to expect anything other than formation of a fibrous web of nanofibers. As discussed above, the close proximity of the orifice and the electrode and the high voltage applied to the electrode, surprisingly, provides for an accelerated polymer jet that is collected to provide the oriented polymer fibers, as set forth in independent claims 1 and 15.

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Claims 3 and 17

Dependent claims 3 and 17 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bryner in view of Lee *at al.* (US 2002/0122840 A1). Applicants respectfully disagree.

For the reasons discussed above with respect to Bryner, Applicants submit that dependent claims 3 and 17 are allowable at least because they ultimately depend from allowable, independent claims 1 and 15, respectively.

Claim 12

Claim 12 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bryner in view of Childs (U.S. Patent No. 2,338,570). Applicants respectfully disagree.

For the reasons discussed above with respect to Bryner, Applicants submit that dependent claim 12 is allowable at least because it depends from allowable, independent claim 1.

Claims 21-26

Claims 21-26 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bryner in view of Chu et al. (U.S. 2003/0054035). Applicants respectfully disagree.

For the reasons discussed above with respect to Bryner, Applicants submit that dependent claims 21-16 are allowable at least because they ultimately depend from allowable, independent claim 15.

Applicants respectfully request reconsideration and withdrawal of these rejections.

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**CONCLUSION**


In view of the above amendments and remarks, reconsideration and favorable action on all claims are respectfully requested. In the event any matters remain to be resolved, the Examiner is requested to contact the undersigned at the telephone number given below so that a prompt disposition of this application can be achieved.

A request for continued examination (RCE) under 37 C.F.R. §1.114 accompanies this response. The Commissioner is hereby authorized to charge \$810 as the fee for the RCE due in connection with the filing of this paper, to Deposit Account No. 07-1896, referencing the above-identified Attorney Docket Number.

No other fees are believed to be due with the present communication, however, the Commissioner is hereby authorized to charge any other fees that may be due in connection with the filing of this paper, or credit any overpayment to Deposit Account No. 07-1896, referencing the above-identified Attorney Docket Number.

Respectfully submitted,

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